USGS

# WATER RESOURCES RESEARCH GRANT PROPOSAL

Evaluation of Processes Controlling Sediment Entrapment by Rangeland Riparian Vegetation

Duration: September 1996 - December 1998

Federal Funds Requested: FY97-$31,100 FY98-$28,900

Federal Funds Pledged: FY97-$49,301 FY98-$45,885 FY99-$23,929

Non-Federal Funds: FY97-$68,038 FY98-$64,400

Principal Investigator(s): Clayton B. Marlow, Associate Dean-Resident Instruction

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Congressional District: First

Statement of Need:

Research on vegetative filter strips suggests that functioning riparian areas can be an effective filter sediment and nutrients arising from grazing areas. Consequently, efforts to bring livestock agriculture into compliance with state and Federal water quality standards have been broadened to include the improvement and protection of riparian areas. The most common approach is to recommend certain livestock and grazing management practices for private and Federal land managers to use when developing water quality remediation plans. The state of Montana has recently developed a set of grazing best management practices to be used by private operators and Federal land managers to bring grazing allotments and ranches/farms into compliance with state water quality criteria. However, several of these practices, especially those pertaining to protection of riparian areas remain to be tested under Montana climatic and economic conditions. Without

clearly described results, managers and state/Federal regulatory personnel may be reluctant to use the recommended practices.

This situation would not be unique to Montana because the Rangeland Reform Environmental Impact Statement for USDI Bureau of Land Management and USDA Forest Service Lands carries provisions for increased management of riparian areas for water quality improvement on all Federal grazing lands. The Coastal Zone Management Act also has provisions for grazing management practices to reduce non-point sediment production from private grazing lands. Consequently, research into the characteristics of grazed riparian areas that promote (or fail to promote) sediment entrapment would have broad regional and national application.

## Statement of Results or Benefits

Results from this project would provide direct benefits to both private rancher/farmers, Federal land managers and state/Federal regulatory agencies. Information on those riparian ecosystem processes which direct or control sediment entrapment could be used to design riparian buffer strips for western range and forest lands. Identification of the mechanical effects of livestock grazing on these riparian processes will lead to the refinement of grazing best management practices for Federal grazing allotments and private lands. In combination, this information should improve the opportunity for private landowners and Federal land managers to be in better compliance with state/Federal water quality standards.